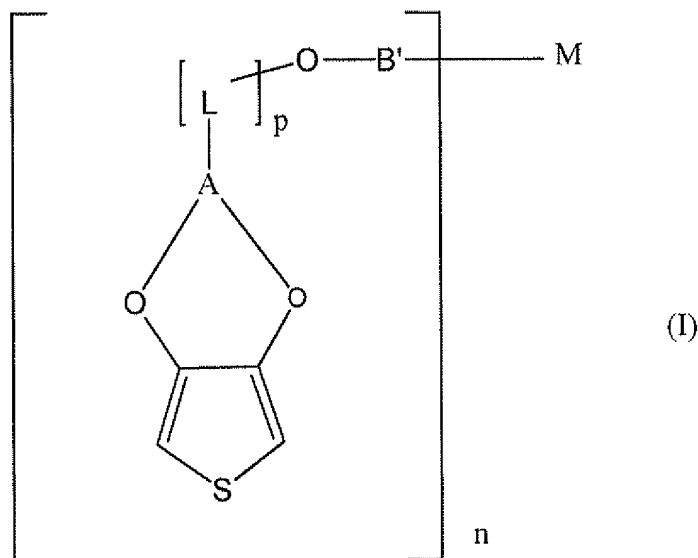


AMENDMENTS TO THE CLAIMS

Claims 1-45 (Canceled).

46. (New) A 3,4-Alkylenedioxythiophenes of the formula (I),



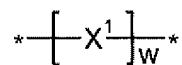
wherein

A is a C₁ or C₃-C₅-alkylene radical which is substituted at any point by a linker L and optionally bears further substituents,

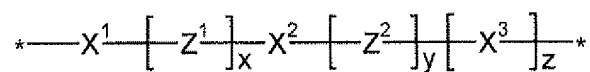
L is a methylene group,

p is 0 or an integer from 1 to 6,

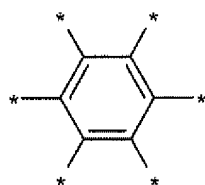
M is an n-functional group of the formula (II-a), (II-b) or (II-c-1) to (II-c-6),



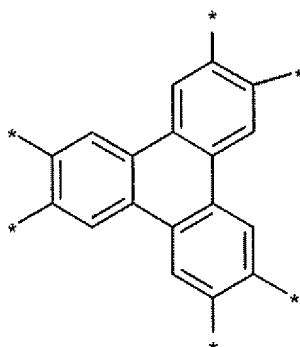
(II-a)



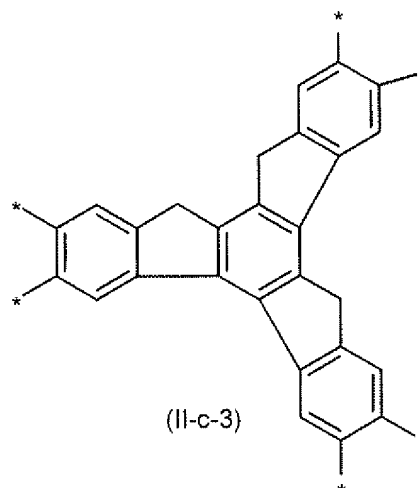
(II-b)



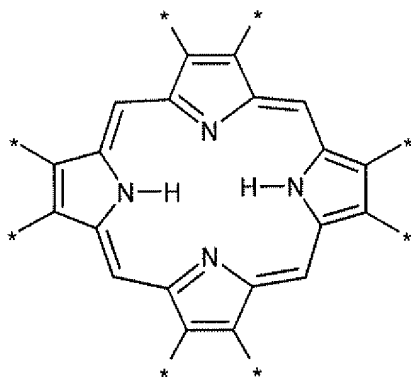
(II-c-1)



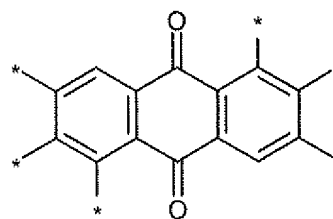
(II-c-2)



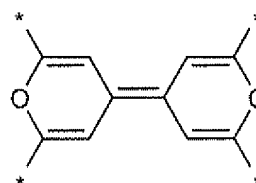
(II-c-3)



(II-c-4)



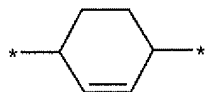
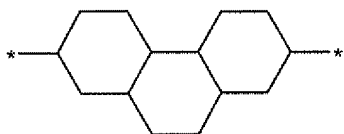
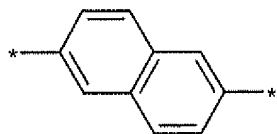
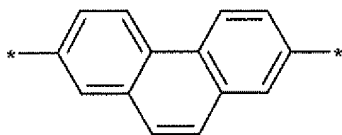
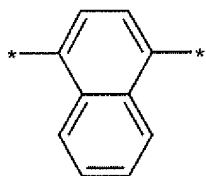
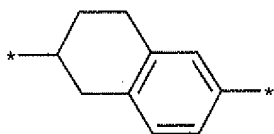
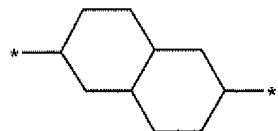
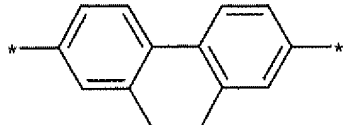
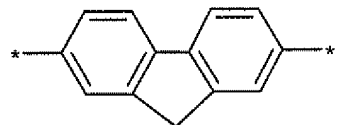
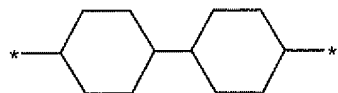
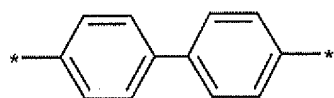
(II-c-5)

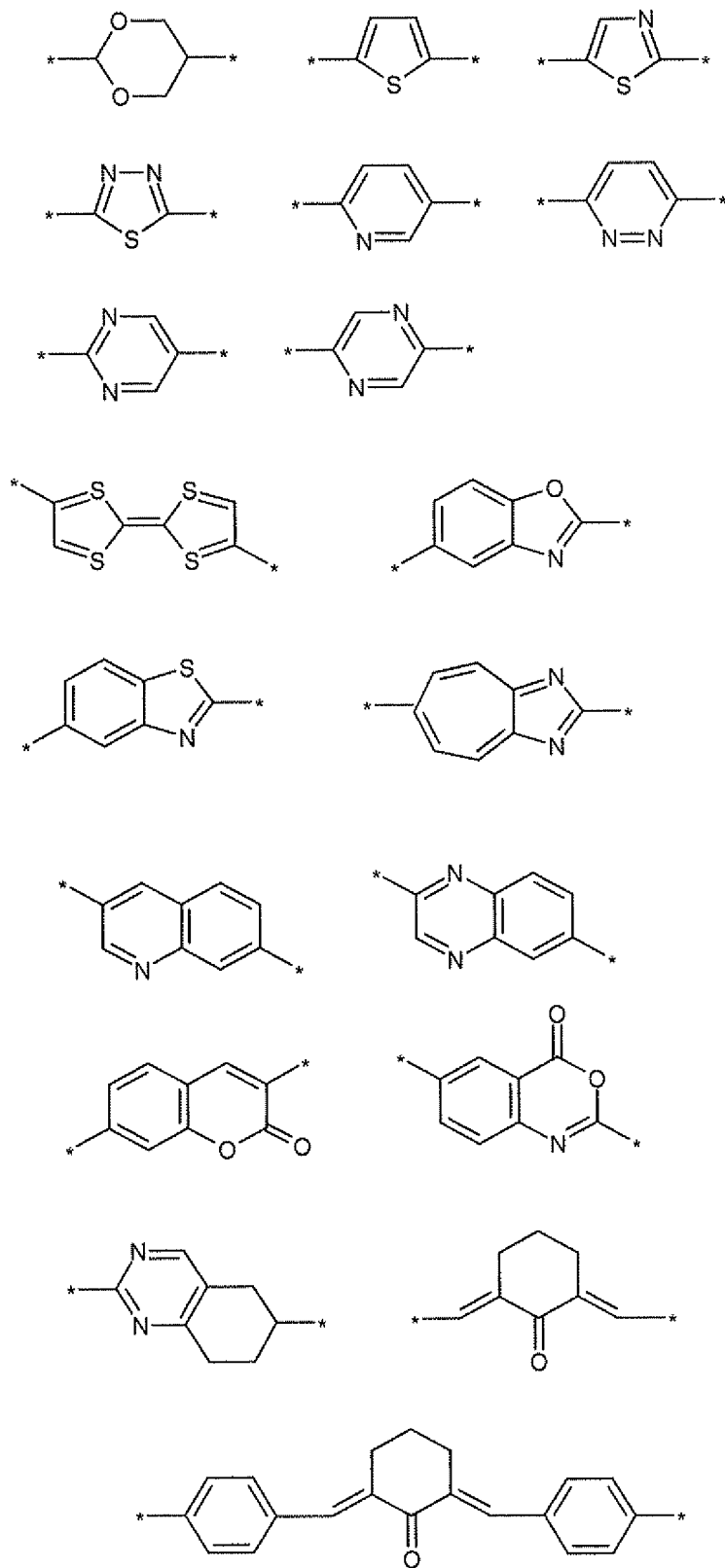


(II-c-6)

wherein

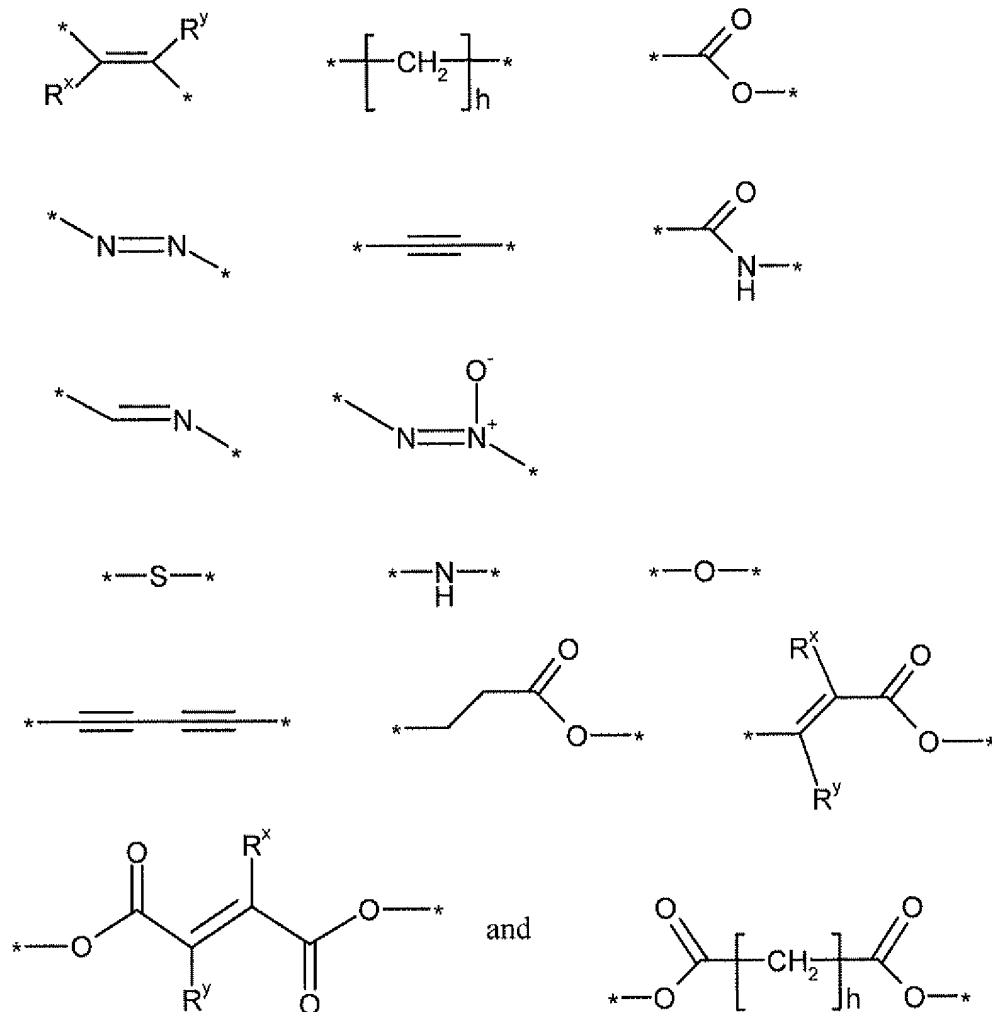
X^1 , X^2 and X^3 are substituted or unsubstituted structures selected independently from the group consisting of





and

Z^1 and Z^2 are structures selected independently from the group consisting of



wherein

R^x and R^y are each, independently of one another, H, substituted or unsubstituted $\text{C}_1\text{-C}_{22}$ -alkyl, $\text{C}_1\text{-C}_{22}$ -haloalkyl, $\text{C}_1\text{-C}_{22}$ -alkenyl, $\text{C}_1\text{-C}_{22}$ -alkoxy, $\text{C}_1\text{-C}_{22}$ -thioalkyl, $\text{C}_1\text{-C}_{22}$ -iminoalkyl, $\text{C}_1\text{-C}_{22}$ -alkoxycarbonyl, $\text{C}_1\text{-C}_{22}$ -alkoxycarbonyloxy, a radical of an aliphatic $\text{C}_1\text{-C}_{22}$ -alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, NO_2 , a carboxyl group or a hydroxy group,

h is an integer from 1 to 10,

w is an integer from 1 to 5,

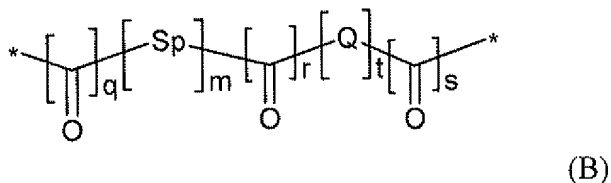
x, y and z are each, independently of one another, 0 or 1, and

n an integer from 1 to 8, where when n is 1, the group of the formula (II-a) or (II-b) bears a terminal group F' at the linkage points denoted by *,

wherein

F' is substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, a nitro (NO₂) group, a carboxyl group, a sulphonic acid group or sulphonate group or a hydroxy group,

B' is a bridging group of the formula (B)



wherein

q is 0 or 1,

r and s are identical or different and each are 0 or 1, with the proviso that when r is 1, s is 0 and vice versa or both are optionally 0,

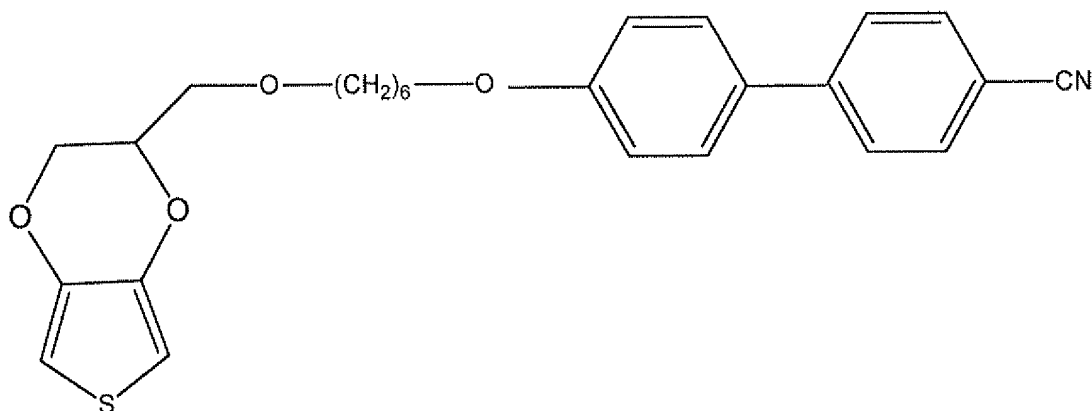
t is 0 or 1,

Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-heteroarylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀₀-oligoether and -polyether groups,

m is 0 or 1,

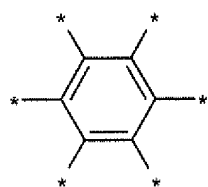
Q is O, S or NH

with the proviso that said polythiophenes is not

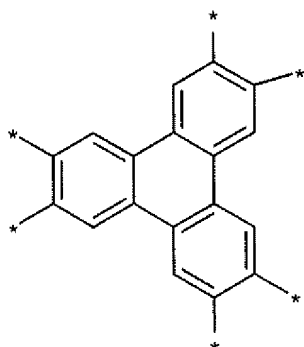


47. (New) The 3,4-Alkylenedioxythiophenes of claim 46,
wherein

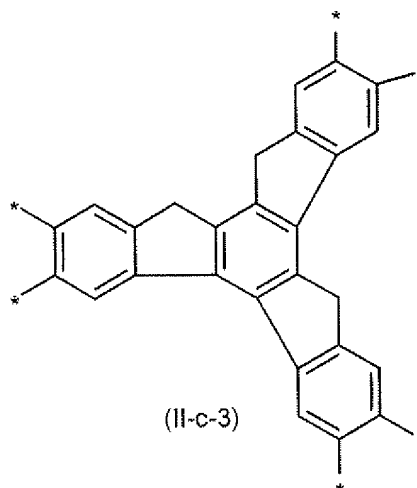
M is an n-functional group selected from the group consisting of the formulae (II-c-1) to (II-c-6),



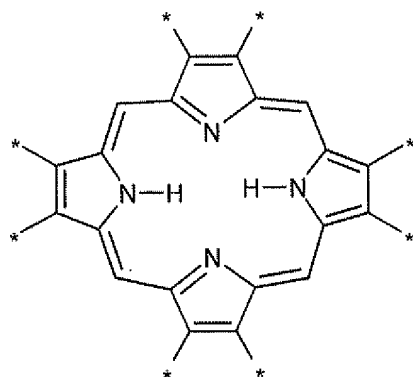
(II-c-1)



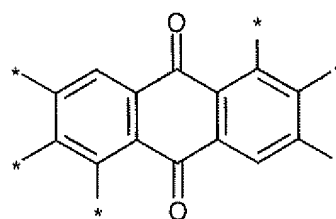
(II-c-2)



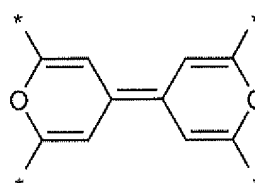
(II-c-3)



(II-c-4)



(II-c-5)



(II-c-6)

wherein

n is at most 4, 6 or 8,

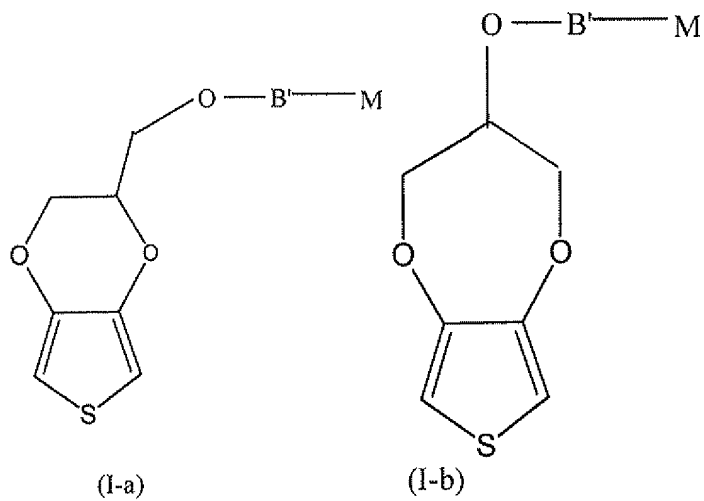
and wherein when n is an integer below 4, 6 or 8, M is selected from the group consisting of the formulae (II-c-1) to (II-c-6) bearing a terminal group F' on the remaining 4 - n, 6 - n or 8 - n linkage points denoted by *,

wherein

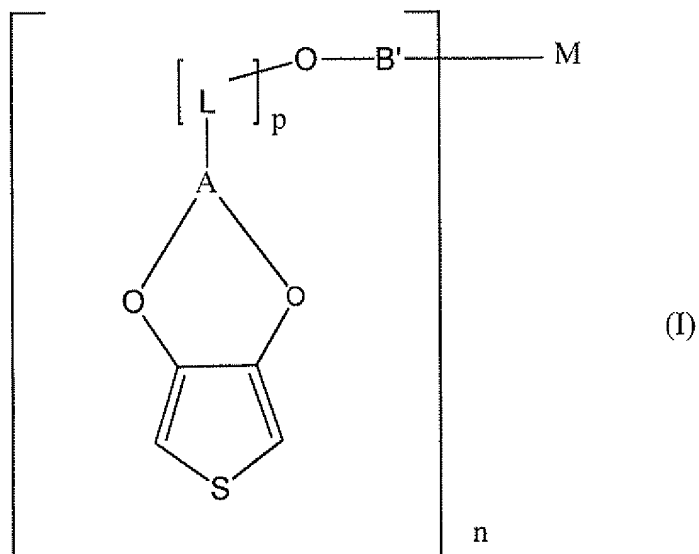
F' is H, substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, a

nitro (NO₂) group, a carboxyl group, a sulphonic acid group or sulphonate group or a hydroxy group.

48. (New) The 3,4-Alkylenedioxythiophene of claim 46, having the structure of the formulae (I-a) or (I-b),



49. (New) A 3,4-Alkylenedioxythiophene of the formula (I),



wherein

A is a C₁-C₅-alkylene radical which is substituted at any point by a linker L and optionally bears further substituents,

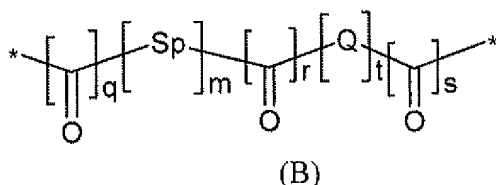
L is a methylene group,

p is 0 or an integer from 1 to 6,

M is an n-functional steroid radical or a derivative of a steroid radical,

n is 1 and

B' is a bridging group of the formula (B)



wherein

q is 0 or 1,

r and s are each independently 0 or 1, with the proviso that when r is 1, s is 0 and vice versa or both are optionally 0,

t is 0 or 1,

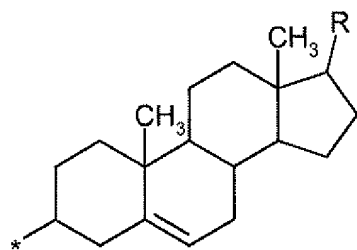
Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-hetero-arylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀₀-oligoether and -polyether groups,

m is 0 or 1,

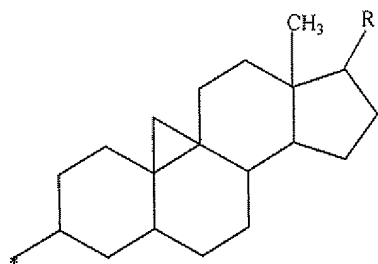
Q is O, S or NH.

50. (New) The 3,4-Alkylenedioxythiophene as claimed in claim 49, wherein

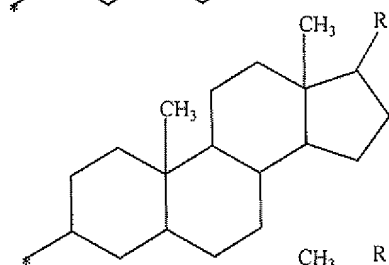
M is an n-functional cholesteryl radical or a derivative of the cholesteryl radical of the formula (III-a)-(III-e),



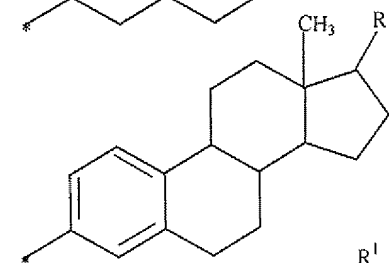
(III-a)



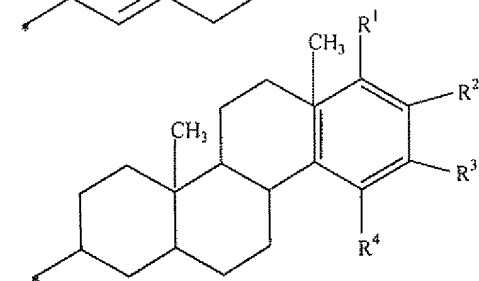
(III-b)



(III-c)



(III-d)

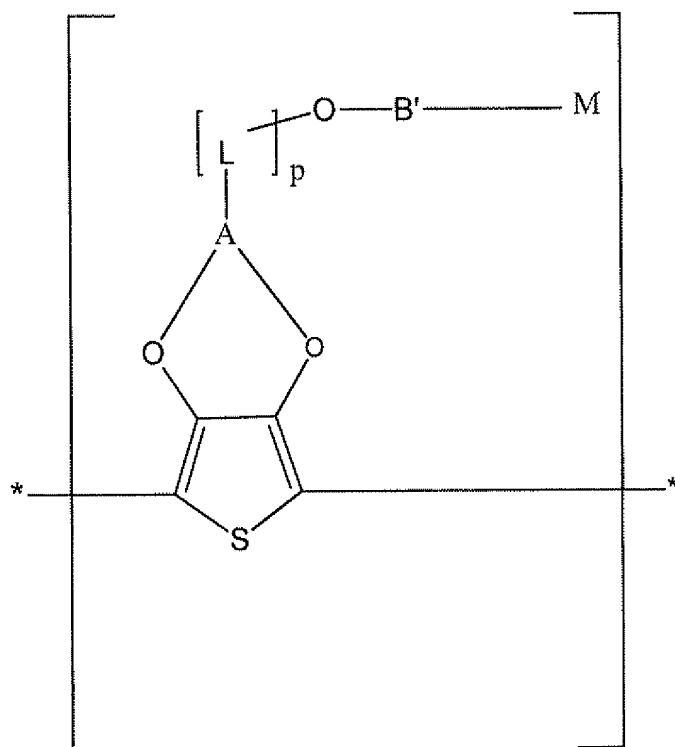


(III-e)

wherein R is H, substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, a nitro (NO₂) group, a carboxyl group, a sulphonic acid group or sulphonate group or a hydroxy group, and

R^1 , R^2 , R^3 and R^4 can, independently of one another, be as defined above for R.

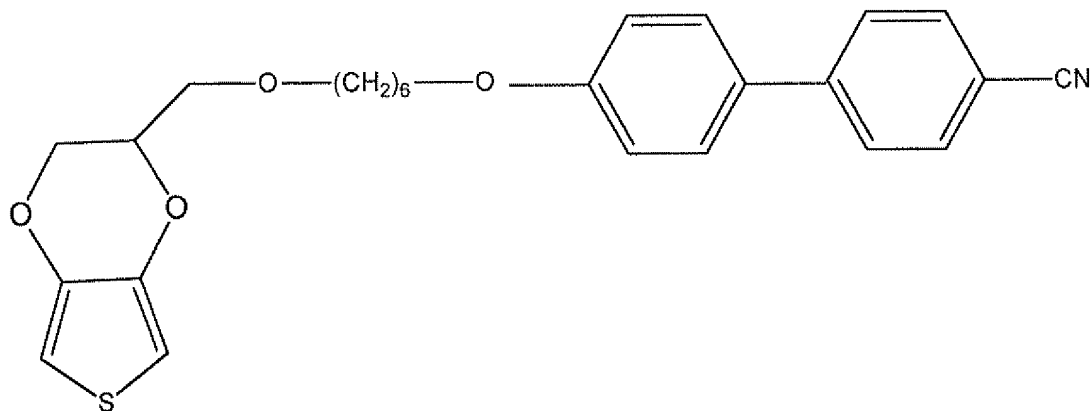
51. (New) A process for preparing a polythiophene comprising polymerizing the 3,4-alkylenedioxythiophene as claimed in claim 46.
52. (New) The process of Claim 51 wherein a mixture of two or more compounds of Formula 1 are polymerized.
53. (New) A process for preparing electrical or electronic components, light-emitting components, for antistatic coating, in optoelectronics or in solar energy technology comprising incorporating the polythiophene according to claim 46.
54. (New) A polythiophene which comprise recurring units of the formula (IV),



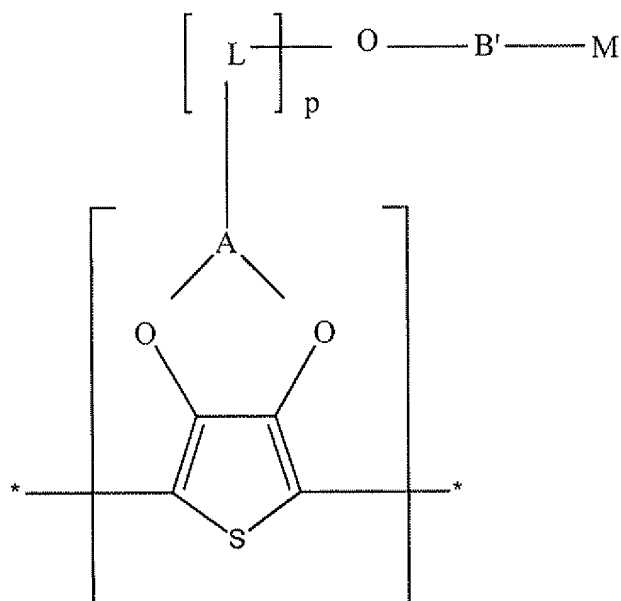
(IV)

produced according to the process of claim 51

with the proviso that said polythiophenes is not



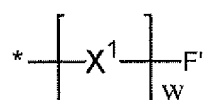
55. (New) A process for preparing electrical or electronic components, light-emitting components, for antistatic coating, in optoelectronics or in solar energy technology comprising incorporating the polythiophene of Claim 54.
56. (New) A process for preparing conductive layers comprising incorporating the polythiophene according to Claim 54.
57. (New) The process according to claim 52, which further comprises heating the layer at a temperature from 80⁰C to 300⁰C.
58. (New) The process according to claim 56, which further comprises heating the layer at a temperature from 80⁰C to 300⁰C.
59. (New) A polythiophene which comprise recurring units of the formula (IV),



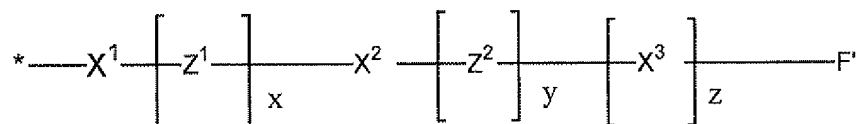
(IV)

wherein

- A is a C₁-C₅-alkylene radical which is substituted at any point by a linker L and optionally bears further substituents,
 L is a methylene group,
 p is 0 or an integer from 1 to 6,
 M is an n-functional group of the formula (II-a) or (II-b),



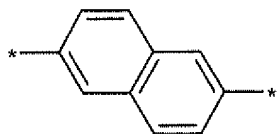
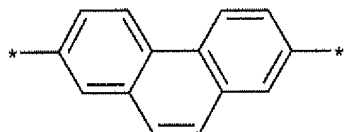
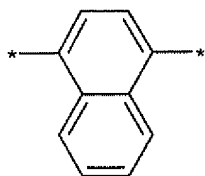
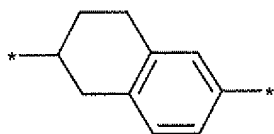
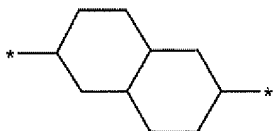
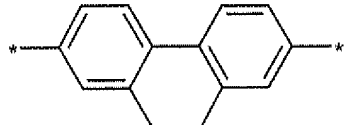
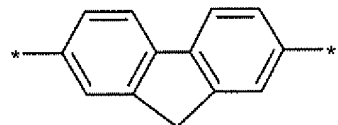
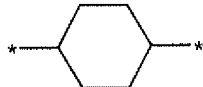
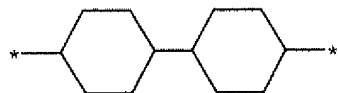
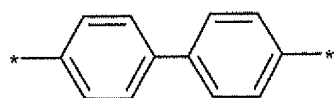
(II-a)

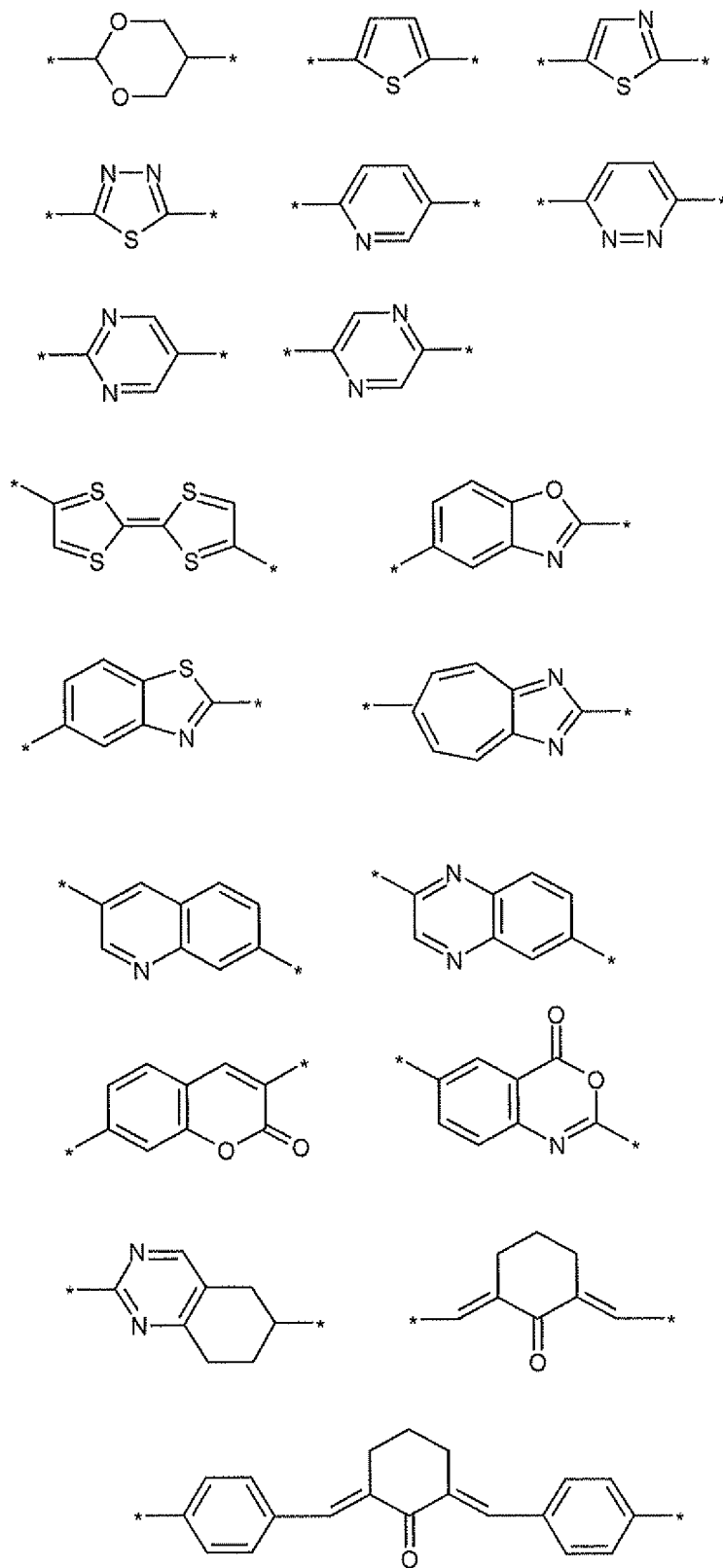


(II-b)

wherein

X¹, X² and X³ are substituted or unsubstituted structures selected independently from the group consisting of

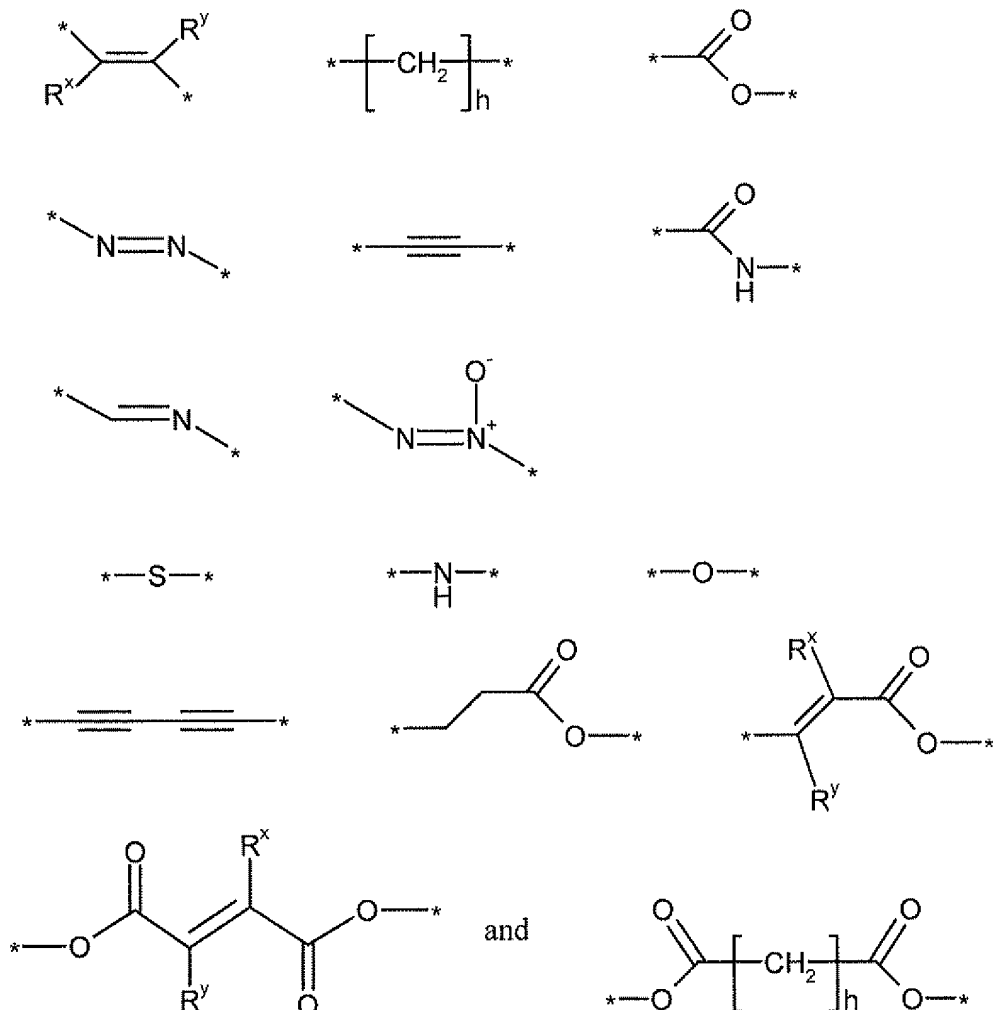




and

Z^1 and Z^2

are structures selected independently from the group consisting of



wherein

R^x and R^y are each, independently of one another, H, substituted or unsubstituted $\text{C}_1\text{-C}_{22}$ -alkyl, $\text{C}_1\text{-C}_{22}$ -haloalkyl, $\text{C}_1\text{-C}_{22}$ -alkenyl, $\text{C}_1\text{-C}_{22}$ -alkoxy, $\text{C}_1\text{-C}_{22}$ -thioalkyl, $\text{C}_1\text{-C}_{22}$ -iminoalkyl, $\text{C}_1\text{-C}_{22}$ -alkoxycarbonyl, $\text{C}_1\text{-C}_{22}$ -alkoxycarbonyloxy, a radical of an aliphatic $\text{C}_1\text{-C}_{22}$ -alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, NO_2 , a carboxyl group or a hydroxy group,

h is an integer from 1 to 10,

w is an integer from 1 to 5,

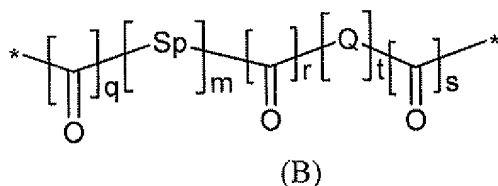
x , y and z are each, independently of one another, 0 or 1, and

n is 1 or 2, where when n is 1, the group of the formula (II-a) or (II-b) bears a terminal group F at the linkage points denoted by *,

wherein

F' is substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, a nitro (NO₂) group, a carboxyl group, a sulphonic acid group or sulphonate group or a hydroxy group,

B' is a bridging group of the formula (B)



wherein

q is 0 or 1,

r and s are each 0 or 1, with the proviso that when r is 1, s is 0 and vice versa or both are optionally 0,

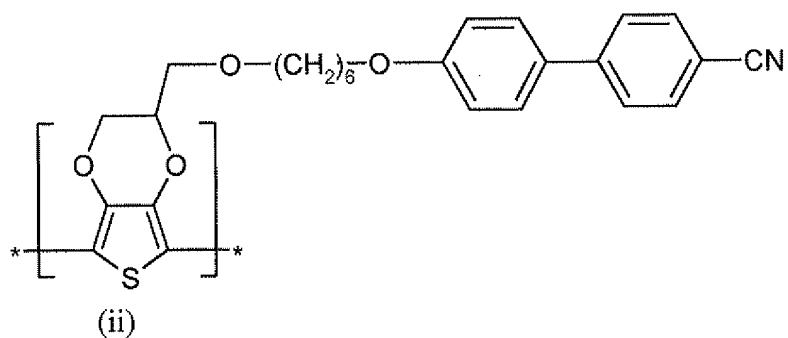
t is 0 or 1,

Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-heteroarylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀₀-oligoether and -polyether groups,

m is 0 or 1,

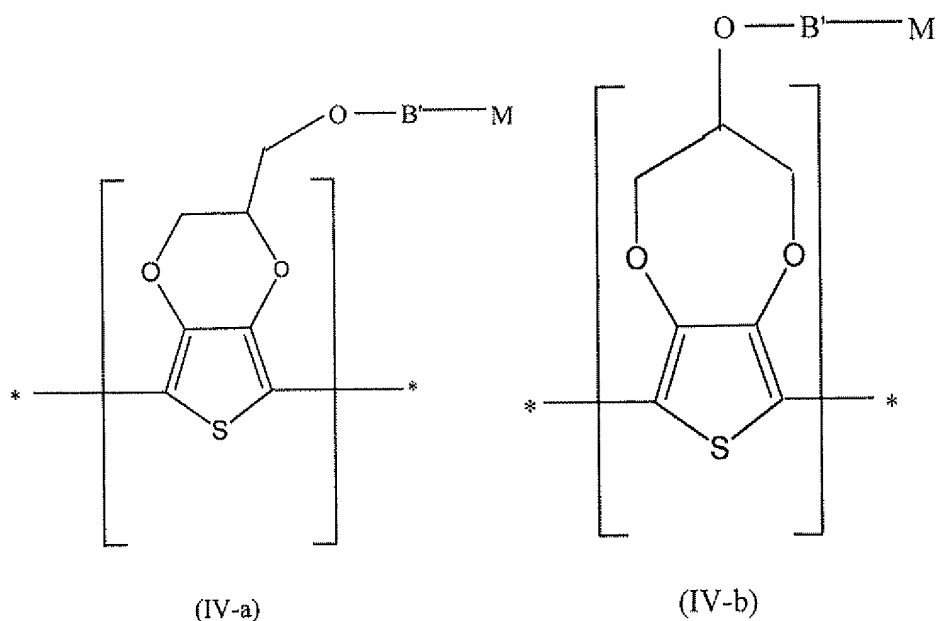
Q is O, S or NH,

with the proviso that said polythiophenes do not contain recurring units of the formula (ii)

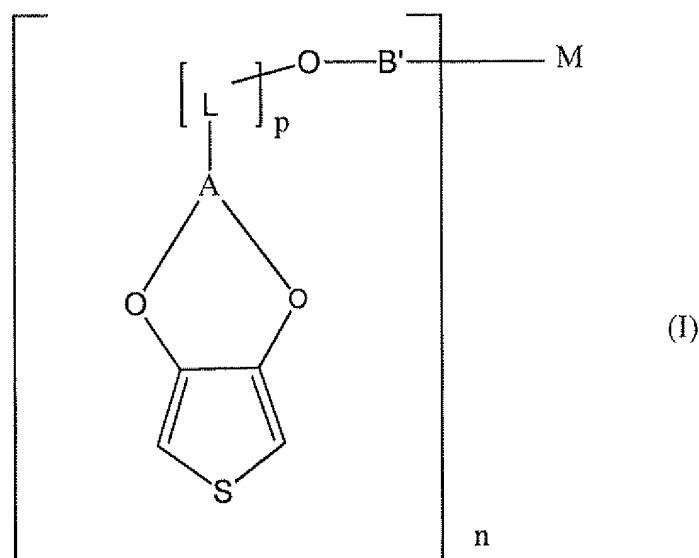


60. (New) A process for preparing the polythiophene as claimed in claim 44, comprising oxidatively polymerizing electrochemically compounds of the formula (I).

61. (New) The polythiophene according to claim 59, wherein the polythiophene comprise recurring units of the formulae (IV-a) and/or (IV-b),



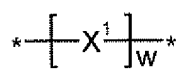
62. (New) The polythiophene of claim 59, wherein they are cationically and electrically conductive and contain bound anions as counterions to balance the positive charge.
63. (New) The polythiophene of Claim 61, wherein the counterions are polyanions of polymeric carboxylic acids or polymeric sulphonic acids.
64. (New) The polythiophene according to claim 44, wherein they are uncharged and semiconducting.
65. (New) Process for the preparing polythiophene as claimed in claim 46 which comprises oxidatively polymerizing electrochemically compounds of the formula (I).
66. (New) A 3,4-Alkylendioxythiophenes of the formula (I),



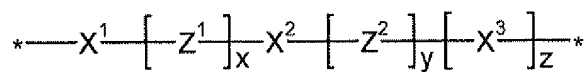
wherein

- A is a C₁-C₅-alkylene radical which is substituted at any point by a linker L and optionally bears further substituents,
- L is a methylene group,
- p is 0,

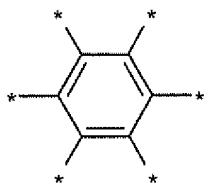
M is an n-functional group of the formula (II-a), (II-b) or (II-c-1) to (II-c-6),



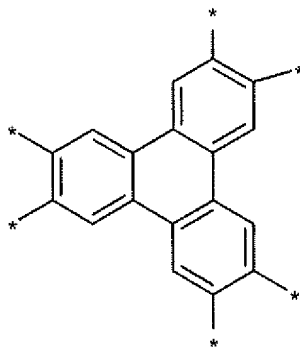
(II-a)



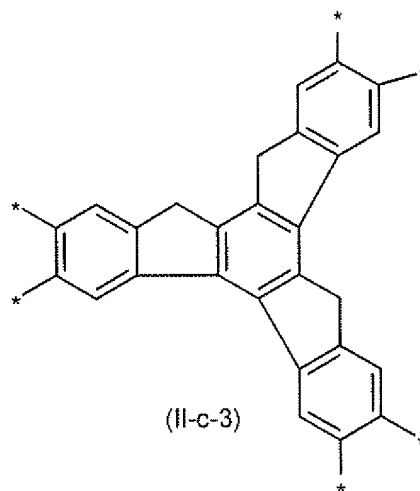
(II-b)



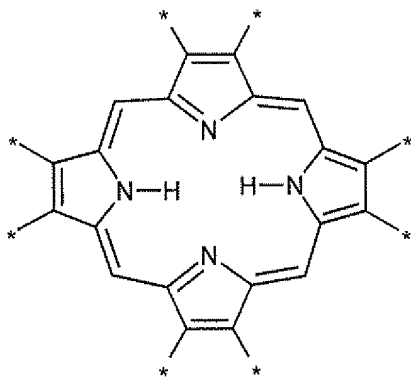
(II-c-1)



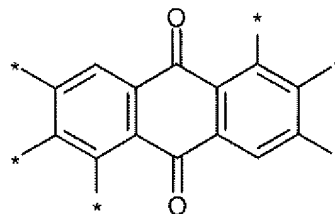
(II-c-2)



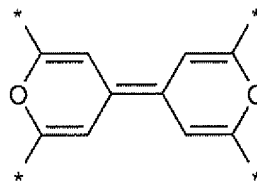
(II-c-3)



(II-c-4)



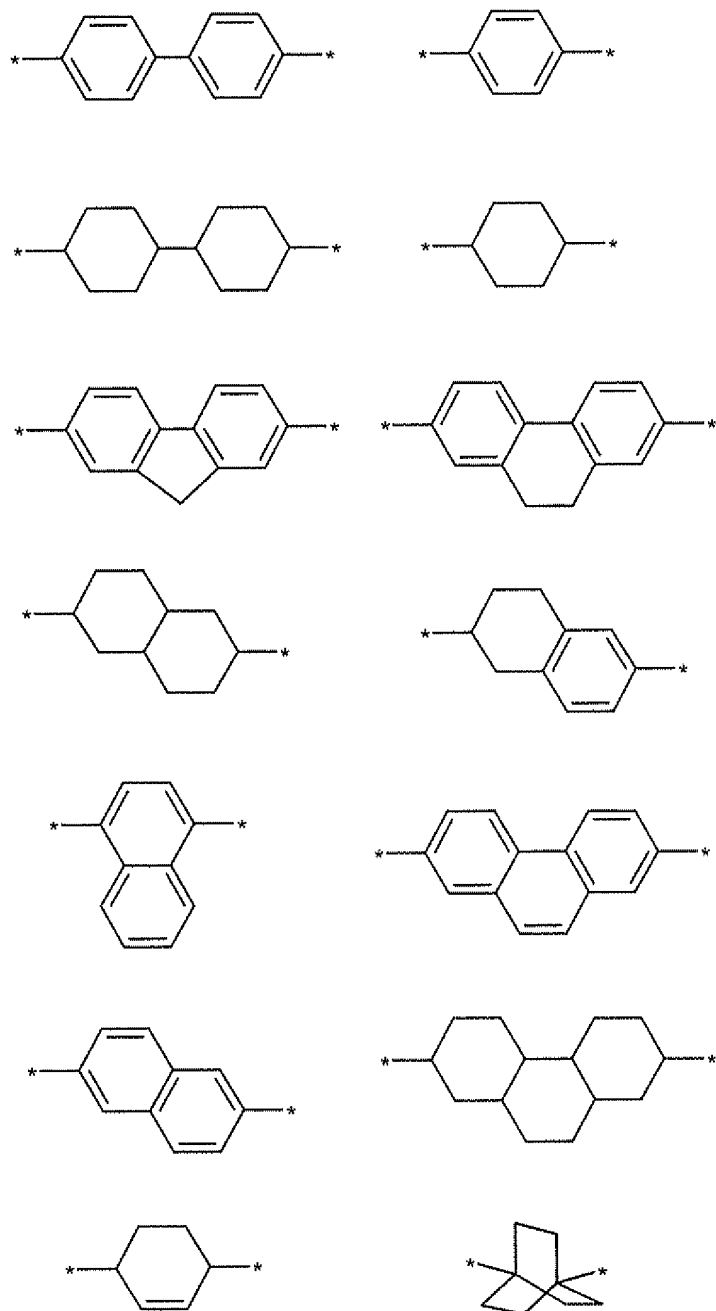
(II-c-5)

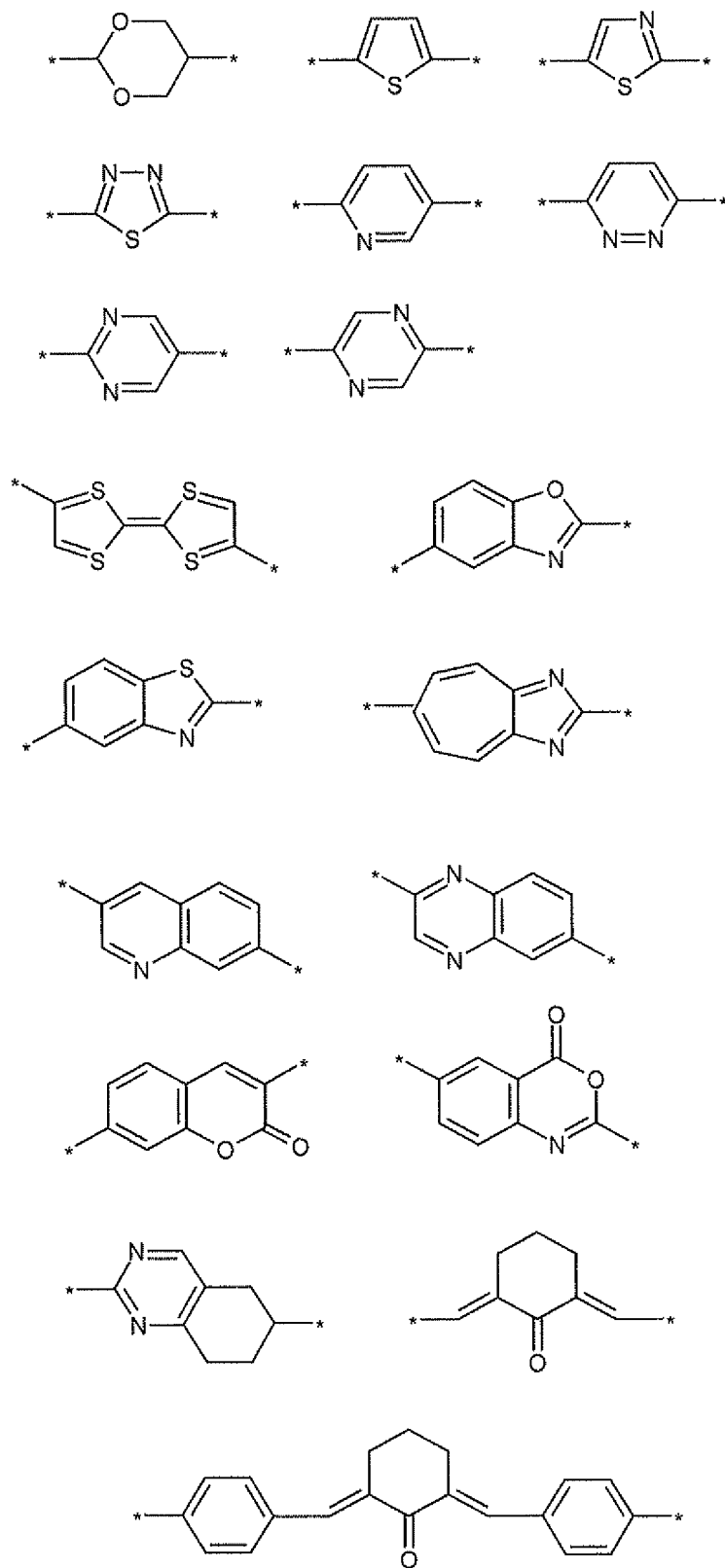


(II-c-6)

wherein

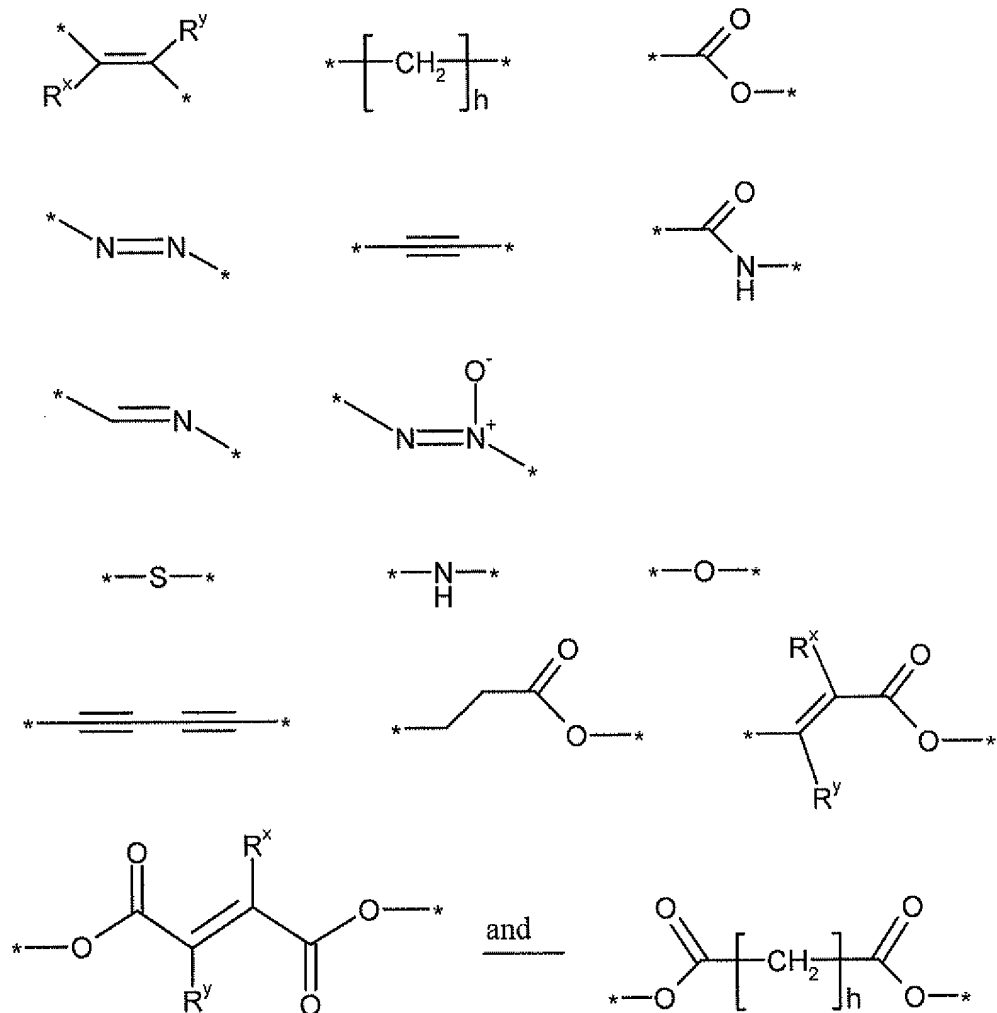
X^1 , X^2 and X^3 are substituted or unsubstituted structures selected independently from the group consisting of





and

Z^1 and Z^2 are structures selected independently from the group consisting of



wherein

R^x and R^y are each, independently of one another, H, substituted or unsubstituted C_1 - C_{22} -alkyl, C_1 - C_{22} -haloalkyl, C_1 - C_{22} -alkenyl, C_1 - C_{22} -alkoxy, C_1 - C_{22} -thioalkyl, C_1 - C_{22} -iminoalkyl, C_1 - C_{22} -alkoxycarbonyl, C_1 - C_{22} -alkoxycarbonyloxy, a radical of an aliphatic C_1 - C_{22} -alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, NO_2 , a carboxyl group or a hydroxy group,

h is an integer from 1 to 10,

w is an integer from 1 to 5,

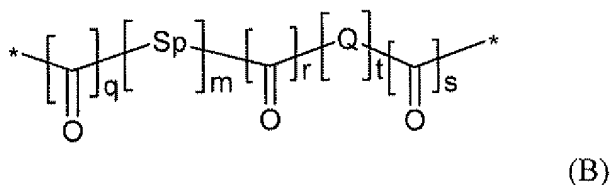
x, y and z are each, independently of one another, 0 or 1, and

n an integer from 1 to 8, where when n is 1, the group of the formula (II-a) or (II-b) bears a terminal group F' at the linkage points denoted by *,

wherein

F' is substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, a nitro (NO₂) group, a carboxyl group, a sulphonic acid group or sulphonate group or a hydroxy group,

B' is a bridging group of the formula (B)



wherein

q is 0 or 1,

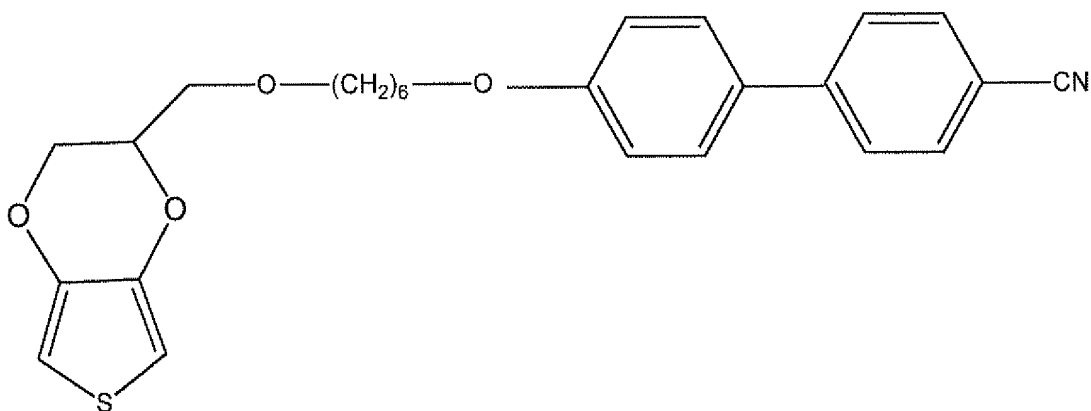
r and s are identical or different and each are 0 or 1, with the proviso that when r is 1, s is 0 and vice versa or both are optionally 0,

t is 0 or 1,

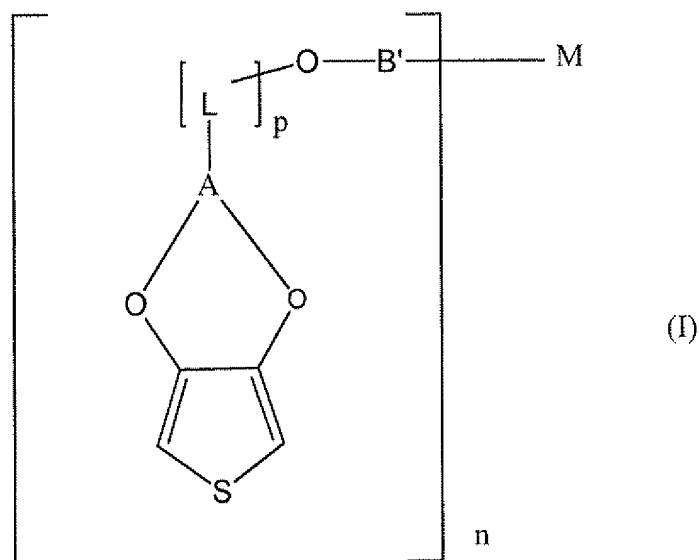
Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-heteroarylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀₀-oligoether and -polyether groups,

m is 0 or 1,

Q is O, S or NH
 with the proviso that said polythiophenes is not



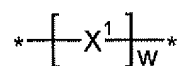
67. (New) A 3,4-Alkylenedioxythiophenes of the formula (I),



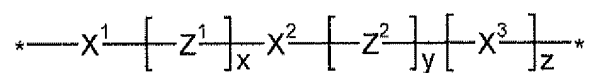
wherein

- A is a C₁-C₅-alkylene radical which is substituted at any point by a linker L and optionally bears further substituents,
- L is a methylene group,
- p is 0 or an integer from 1 to 6,

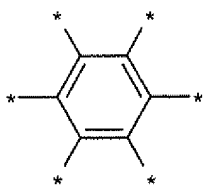
M is an n-functional group of the formula (II-a), (II-b) or (II-c-1) to (II-c-6),



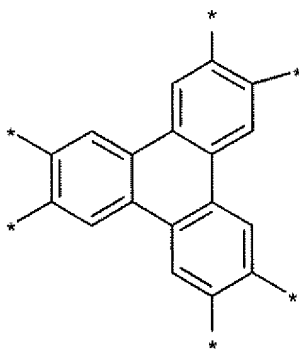
(II-a)



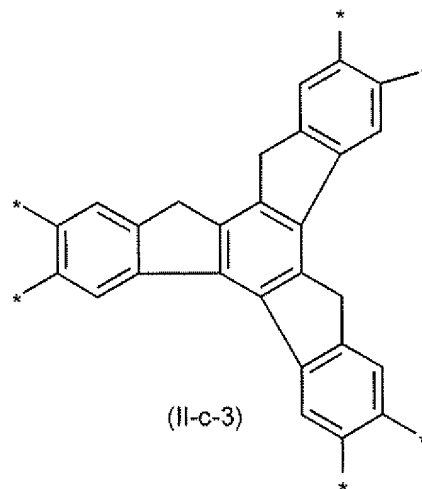
(II-b)



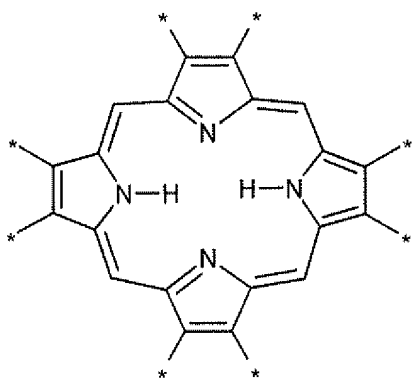
(II-c-1)



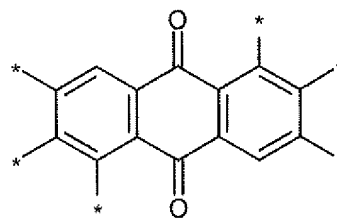
(II-c-2)



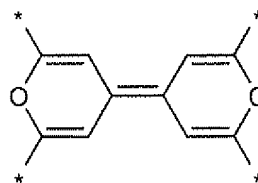
(II-c-3)



(II-c-4)



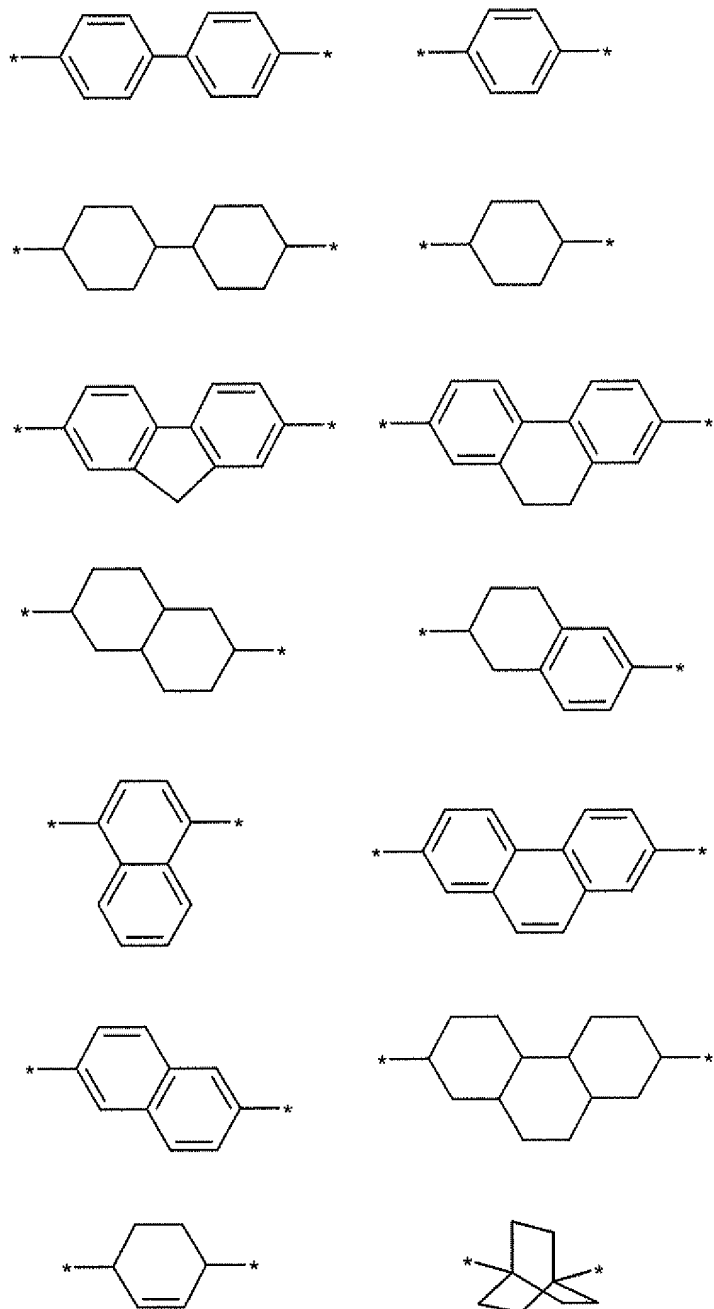
(II-c-5)

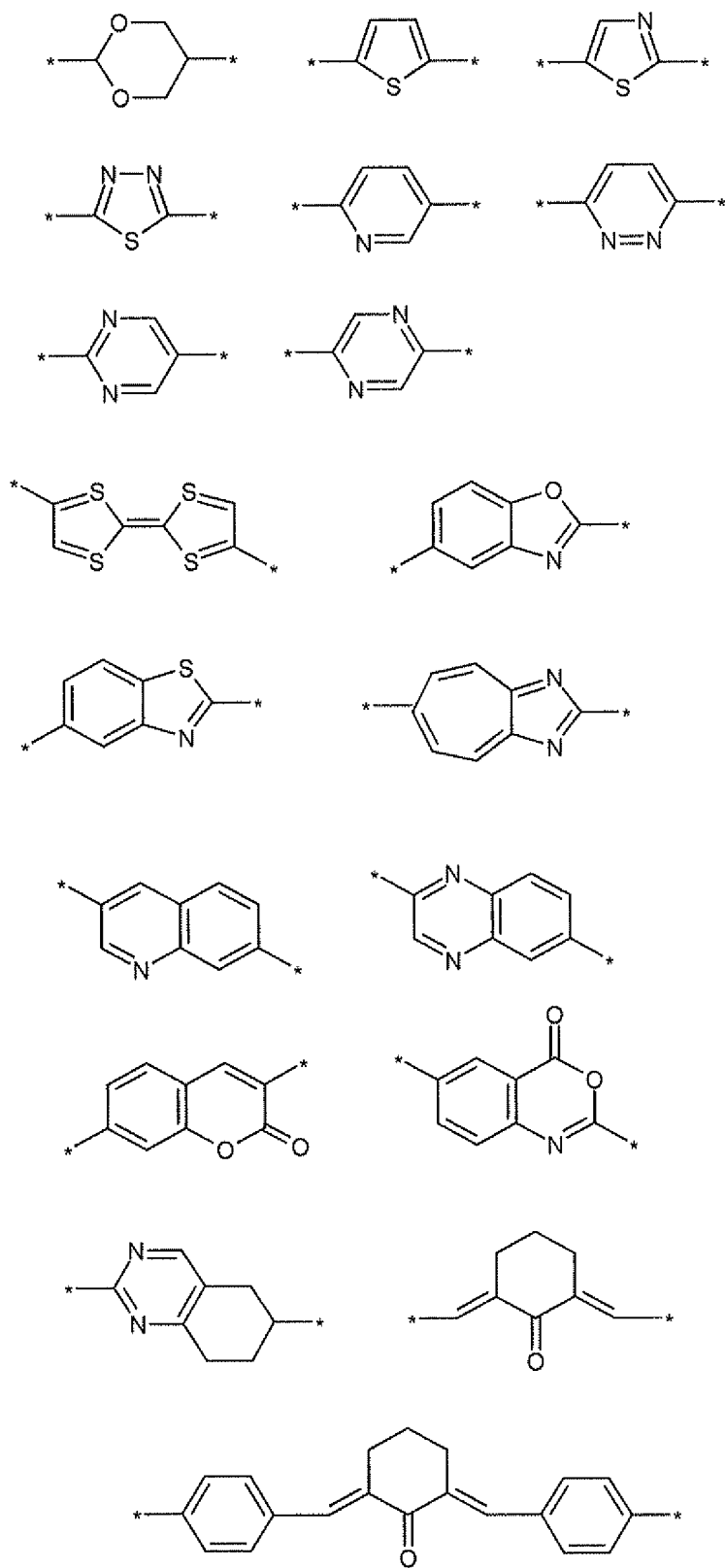


(II-c-6)

wherein

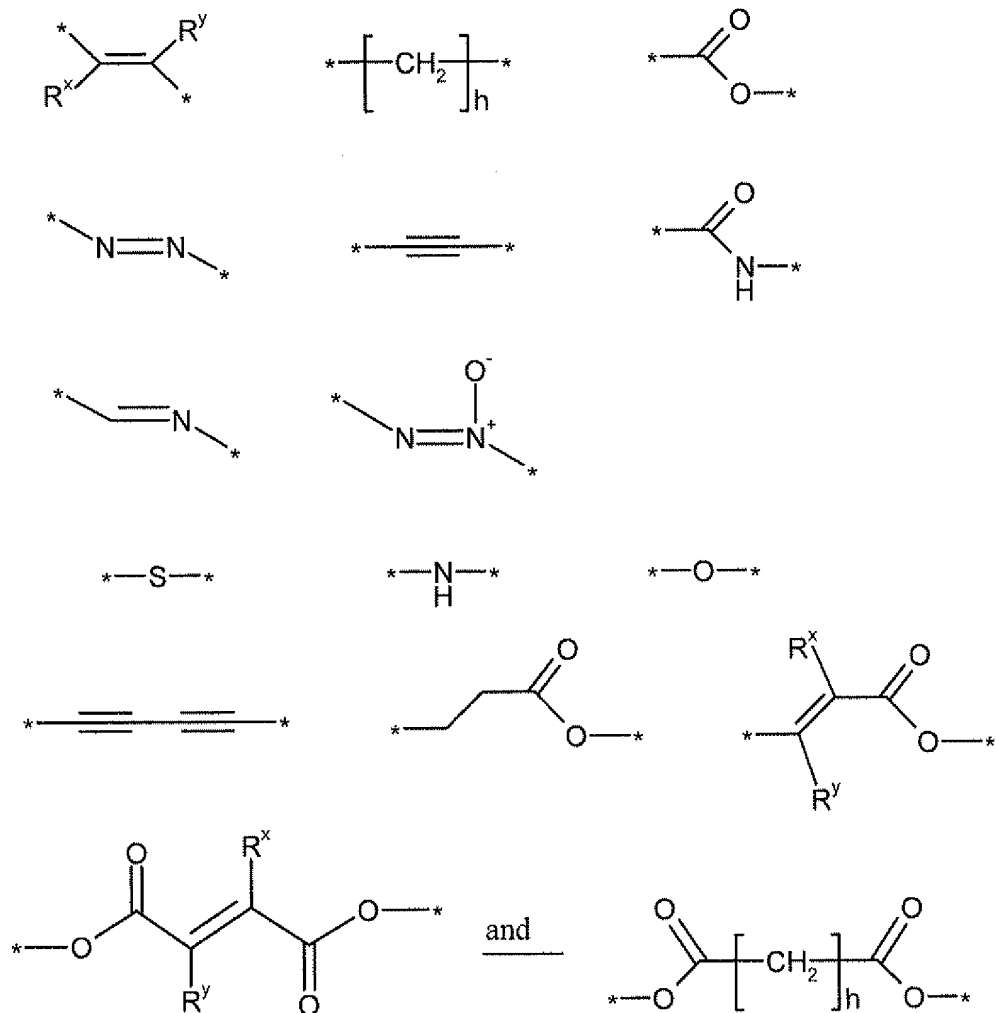
X^1 , X^2 and X^3 are substituted or unsubstituted structures selected independently from the group consisting of





and

Z^1 and Z^2 are structures selected independently from the group consisting of



wherein

R^x and R^y are each, independently of one another, H, substituted or unsubstituted $\text{C}_1\text{-C}_{22}$ -alkyl, $\text{C}_1\text{-C}_{22}$ -haloalkyl, $\text{C}_1\text{-C}_{22}$ -alkenyl, $\text{C}_1\text{-C}_{22}$ -alkoxy, $\text{C}_1\text{-C}_{22}$ -thioalkyl, $\text{C}_1\text{-C}_{22}$ -iminoalkyl, $\text{C}_1\text{-C}_{22}$ -alkoxycarbonyl, $\text{C}_1\text{-C}_{22}$ -alkoxycarbonyloxy, a radical of an aliphatic $\text{C}_1\text{-C}_{22}$ -alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, NO_2 , a carboxyl group or a hydroxy group,

h is an integer from 1 to 10,

w is an integer from 1 to 5,

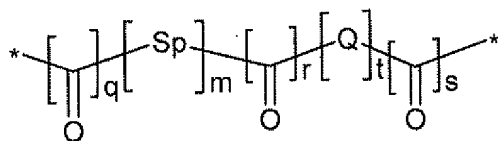
x, y and z are each, independently of one another, 0 or 1, and

n an integer from 1 to 8, where when n is 1, the group of the formula (II-a) or (II-b) bears a terminal group F' at the linkage points denoted by *,

wherein

F' is substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, a nitro (NO₂) group, a carboxyl group, a sulphonic acid group or sulphonate group or a hydroxy group,

B' is a bridging group of the formula (B)



(B)

wherein

q is 0 or 1,

r is 1,

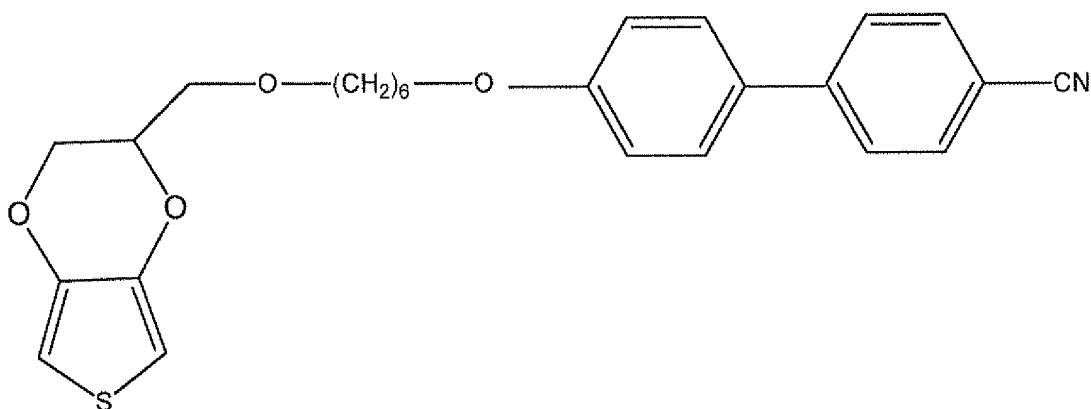
s is 0,

t is 0 or 1,

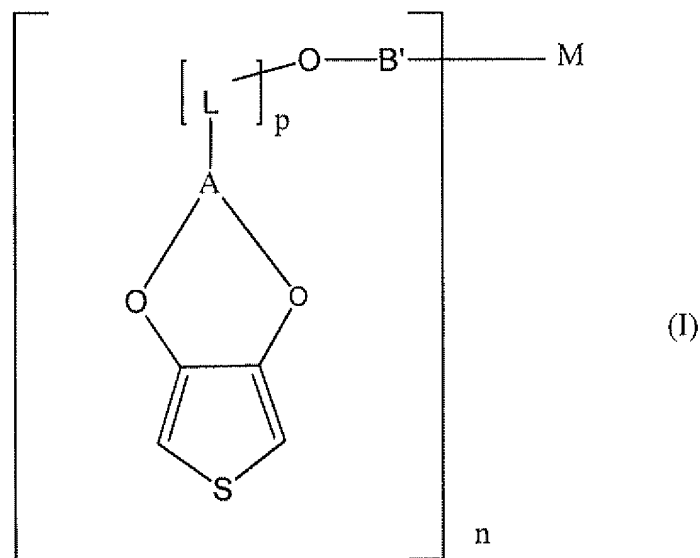
Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-heteroarylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀₀-oligoether and -polyether groups,

m is 0 or 1,

Q is O, S or NH
 with the proviso that said polythiophenes is not

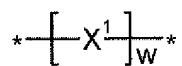


68. (New) A 3,4-Alkylenedioxythiophenes of the formula (I),

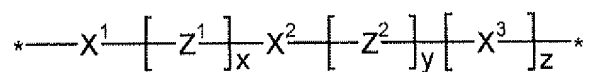


wherein

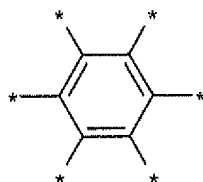
- A is a C₁-C₅-alkylene radical which is substituted at any point by a linker L and optionally bears further substituents,
- L is a methylene group,
- p is 0 or an integer from 1 to 6,
- M is an n-functional group of the formula (II-a), (II-b) or (II-c-1) to (II-c-6),



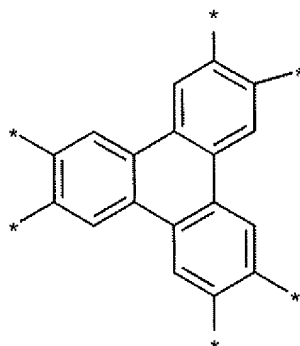
(II-a)



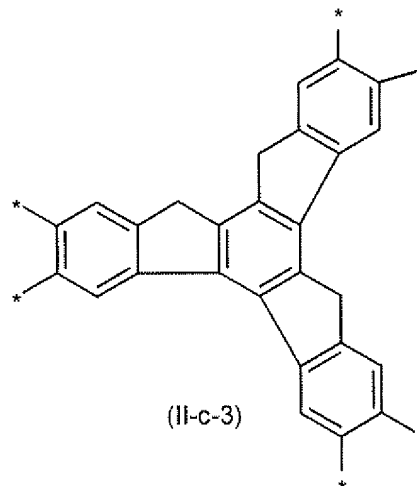
(II-b)



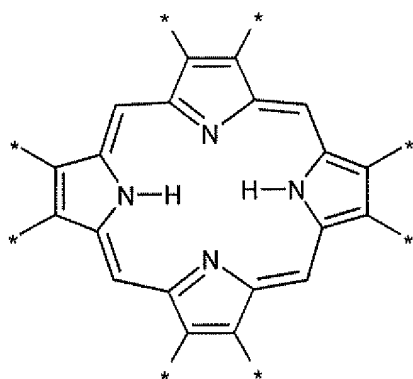
(II-c-1)



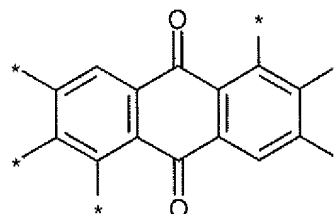
(II-c-2)



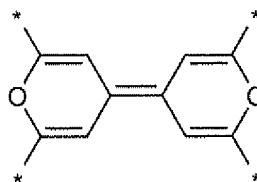
(II-c-3)



(II-c-4)



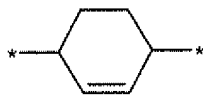
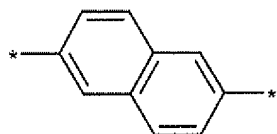
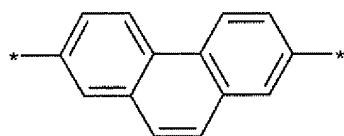
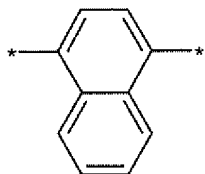
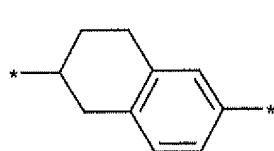
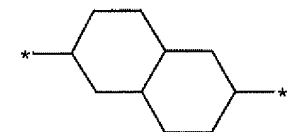
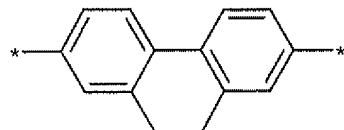
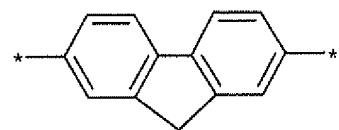
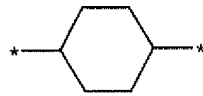
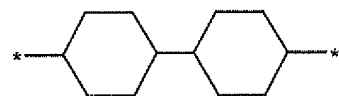
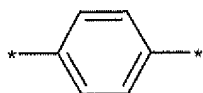
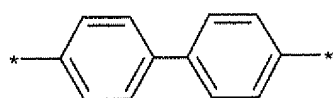
(II-c-5)

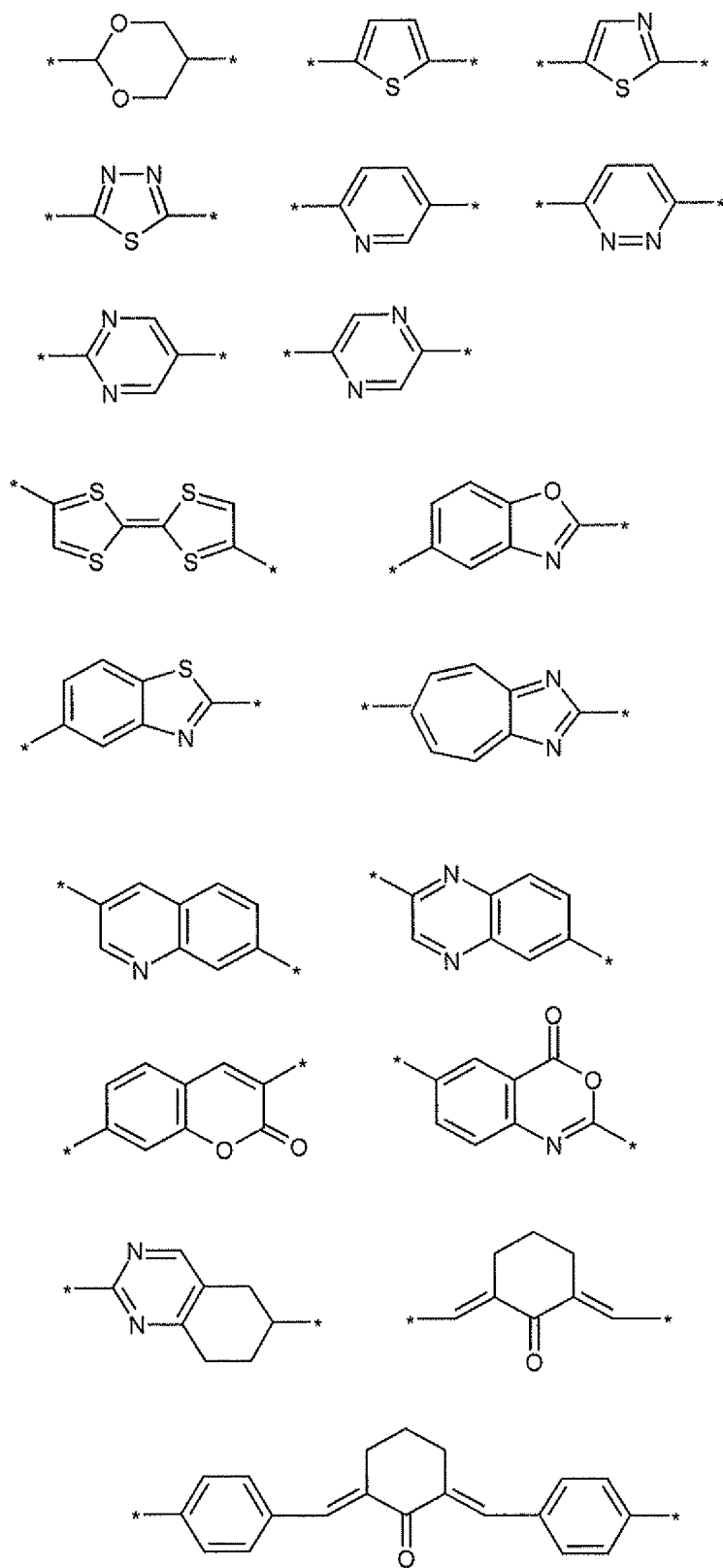


(II-c-6)

wherein

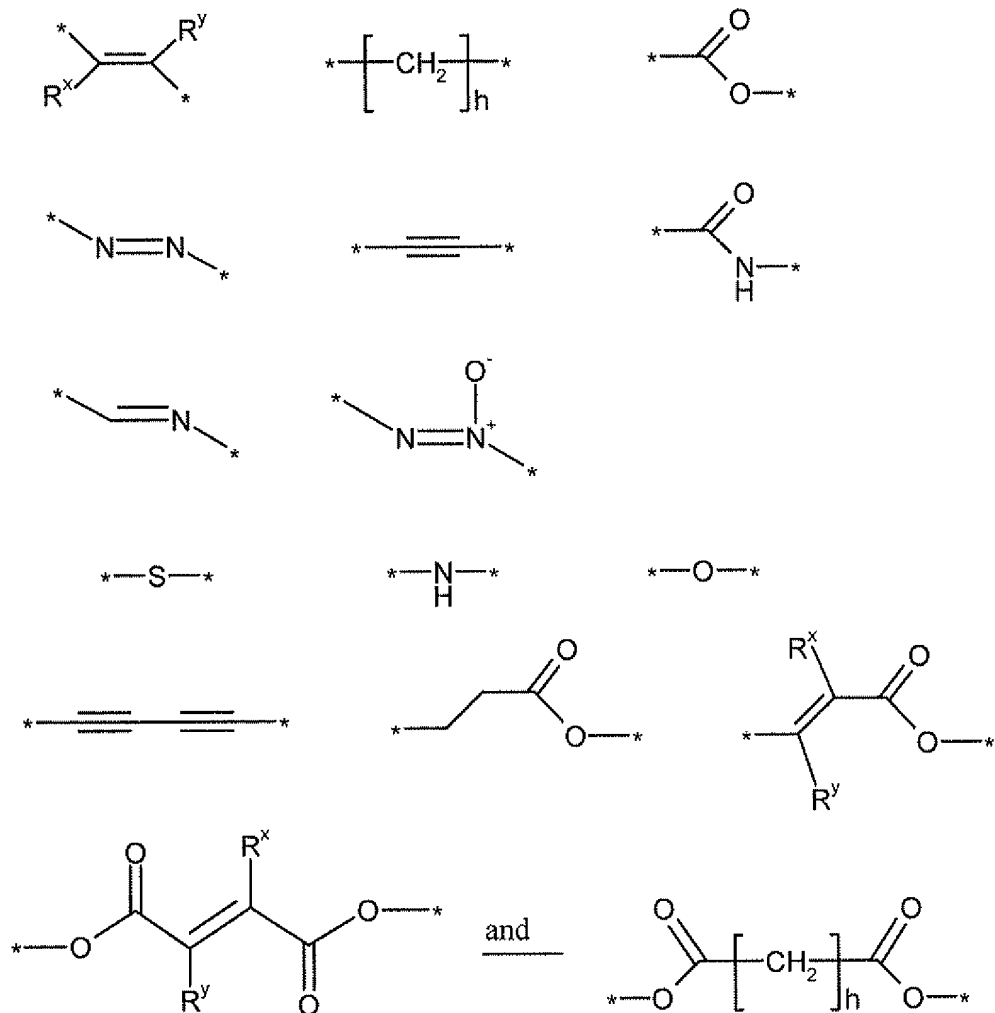
X^1 , X^2 and X^3 are substituted or unsubstituted structures selected independently from the group consisting of





and

Z^1 and Z^2 are structures selected independently from the group consisting of



wherein

R^x and R^y are each, independently of one another, H, substituted or unsubstituted C_1 - C_{22} -alkyl, C_1 - C_{22} -haloalkyl, C_1 - C_{22} -alkenyl, C_1 - C_{22} -alkoxy, C_1 - C_{22} -thioalkyl, C_1 - C_{22} -iminoalkyl, C_1 - C_{22} -alkoxycarbonyl, C_1 - C_{22} -alkoxycarbonyloxy, a radical of an aliphatic C_1 - C_{22} -alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, NO_2 , a carboxyl group or a hydroxy group,

h is an integer from 1 to 10,

w is an integer from 1 to 5,

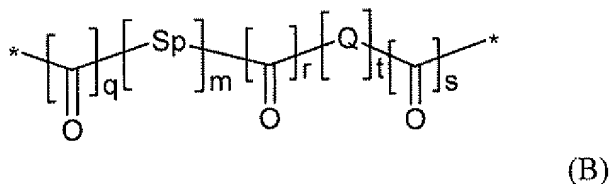
x, y and z are each, independently of one another, 0 or 1, and

n an integer from 1 to 8, where when n is 1, the group of the formula (II-a) or (II-b) bears a terminal group F' at the linkage points denoted by *,

wherein

F' is substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, thiocyno, isocyno, isothiocyano, a nitro (NO₂) group, a carboxyl group, a sulphonic acid group or sulphonate group or a hydroxy group,

B' is a bridging group of the formula (B)



wherein

q is 0 or 1,

r and s are identical or different and each are 0 or 1, with the proviso that when r is 1, s is 0 and vice versa or both are optionally 0,

t is 0 or 1,

Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-heteroarylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀₀-oligoether and -polyether groups,

m is 0 or 1,

Q is O, S or NH

with the proviso that said polythiophenes is not

